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JULY 2010

INSTALLATION INSTRUCTIONS
&
OWNERS GUIDE

RHEEM MAINS PRESSURE ELECTRIC HOT WATER HEATERS

Congratulations for choosing a Rheem Water Heater

It is important that you take a few minutes
to read this booklet as it may save you
time and trouble later.
If you require any further information or your
water heater needs to be serviced, please contact the
Rheem Service Department on 0800 657 335,
or the nearest service centre
(look in the Yellow Pages under Plumbers)

Important to the Installer

Do not leave this booklet inside the element cover
after installation
Please leave the booklet with the water heater's owner

IMPORTANT INFORMATION

GENERAL

- The information contained in this manual, and all other information or advice given at any time by Rheem New Zealand Limited in connection with the purchase, installation or use of a Rheem water heater, is given in good faith. Subject to any rights the owner may have under the "Consumer Guarantees Act 1993", Rheem New Zealand Limited will not be liable to any person for any inaccuracy or omission in the information or advice arising through the fault or negligence of Rheem New Zealand Limited or any other person or through any other cause whatsoever.
- This water heater is not intended to be operated, adjusted or tampered with by young children or infirm persons. Young children should be supervised to ensure they do not play with the water heater.

ABOUT YOUR WATER HEATER

Q. DOES THE WATER QUALITY AFFECT THE WATER HEATER?

A. Your water heater is suitable for most public water supplies, however, some water qualities may have a detrimental effect on it. **If you are in a known harsh water area please read page** 7.

Q. HOW HOT SHOULD THE WATER BE?

A. The Optima features a user adjustable thermostat (temperature range of 60 – 75°C), which allows you to choose the most suitable temperature for your hot water needs.

The Rheemglas models (temperature range 60 - 70°C) require an authorised person to make any temperature adjustments.

For reasons of safety and economy, we advise the thermostat is adjusted to the lowest setting that meets your needs.

The New Zealand Building Code requires a temperature setting of not less than 60°C.

Q. HOW DO I KNOW IF THE WATER HEATER IS INSTALLED CORRECTLY?

A. Refer to the installation requirements on page 4.

Q. HOW LONG WILL THE WATER HEATER LAST?

A. There are a number of factors that affect the life of the water heater. These include; the water quality, water pressure, water temperature and the usage pattern, however, your Rheem water heater is supported by a comprehensive warranty (refer to page 8).

The life of the water heater may be extended by arranging for an authorised person to inspect the anode and replace it, if required.

The suggested time after installation when the anode should be inspected is:

Rheemglas	8 years
Optima	10 years

For softened water supplies or in areas of poor water quality, it is recommended the anode be inspected 3 years earlier than shown (refer to "Water Quality" on page 7).

HOW THE WATER HEATER WORKS

SINGLE AND TWIN ELEMENT MODELS

Water stored within the water heater is heated by the electric heating element. The thermostat controls the electricity supply to the heating element so that a constant water temperature is maintained. As the cold water is heated it expands approximately 1/50 of its volume and, as a result, a small amount of water is discharged from the cold water expansion valve.

NON-SIMULTANEOUS ELEMENT MODELS

The two heating elements are wired for non-simultaneous operation, so that only one heating unit can operate at a time. The bottom heating unit is usually connected to an off-peak (overnight) supply and the top heating unit to a continuous supply. The red link wire must be removed from the terminal block during installation if two separate power supplies are to be used. Leaving the link in place ensures both elements operate correctly with a single power supply.

The basic operation is as follows: when the water temperature at the top of the water heater has reached the set temperature, the thermostat switches the top element off. This creates a circuit to the bottom heating element by switching the neutral.

SAFETY

On all models, a Temperature and Pressure Relief valve is supplied with each water heater. It can be found inside the front cover and must be mounted on top of the water heater.

Also fitted to the water heater is a thermostat, which incorporates an over-temperature thermal cut-out device.

WARNING: *The operation of the thermal cut-out indicates a possible dangerous situation. Do not reset the thermal cut-out until the water heater has been serviced by an authorised service person.*

These safety devices must not be tampered with, or removed, and under no circumstances operate the water heater unless both devices are fitted.

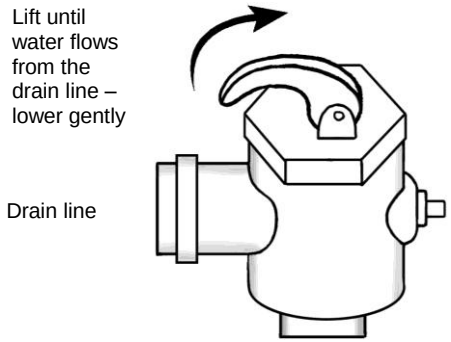
REGULAR CARE

MANUALLY OPERATING THE TEMPERATURE AND PRESSURE RELIEF VALVE:

Valve manufacturers recommend that you operate the easing lever (see diagram. 1) on the Temperature and Pressure Relief valve once every six months. **It is very important that you raise and lower the lever gently.**

WARNING: *To ensure the relief valve is working correctly, operate the relief valve easing lever at least every six months. Failure to do this may result in the water heater bursting.*

DIAGRAM 1



Water Heater

If water does not flow freely from the drain line or the valve fails to completely close and water continues to be discharged, contact the Rheem Service Department, phone **0800 657 335,** or the nearest Rheem Service Centre (look in the Yellow Pages under “Plumbers).

GOING ON HOLIDAYS:

If you plan to be away from home for one or two nights, we suggest that you leave the water heater switched on. However, if you plan to stay away more than a few nights, conserve energy by switching the water heater off at the isolating switch, or at the main switchboard. In locations where freezing could occur, you should leave the water heater turned on.

SAVE A SERVICE CALL

CHECK THE ITEMS BELOW BEFORE MAKING A SERVICE CALL. YOU MAY BE CHARGED FOR SERVICE IF THE FAULT IS NOT RELATED TO THE WATER HEATER MANUFACTURE OR PARTS SUPPLIED WITH THE WATER HEATER BY RHEEM.

WATER DISCHARGING FROM EXPANSION CONTROL VALVES

It is normal for the cold water expansion valve and the temperature and pressure relief valve to discharge a small quantity of water during the heating cycle. If either of these valves discharge more than a bucket full of water in 24 hours, one of the following may be the cause.

- **Continuous dribble**
  Try gently raising the easing lever on the relief valve for a few seconds. This may dislodge small particles of foreign matter and clear the fault.
- **Heavy flow of hot water until the water is cold – then stops while the water reheats**

Immediately turn off the electricity supply to the water heater. Call the Rheem Service Department or look in the Yellow Pages under “Plumbers” for your nearest Rheem Service Centre to arrange an inspection.

- **A steady flow of water (often at night)**
  This may indicate that your cold water pressure sometimes rises above the design pressure of the water heater. A Pressure Limiting valve should be installed, or if one is installed, it may need replacing.

NOT ENOUGH HOT WATER (or no hot water)

- **Is the electricity turned on?**
  Check the switch marked ‘water heater’ at the switchboard and the water heater isolating switch. Check the fuse marked ‘water heater’.

WHERE THE WATER HEATER IS CONNECTED TO AN OFF PEAK (NIGHT RATE) ELECTRICAL TARIFF, THE SUPPLY MAY NOT BE AVAILABLE AT CERTAIN TIMES OF THE DAY.

- **Do you have the correct size heater for your requirements?**
  Refer to the sizing guide in the Rheem sales literature or the Rheem website.
- **Is one outlet (especially the shower) using more hot water than you think?**
  Carefully review the family’s hot water usage and if necessary, check the shower flow rate. For maximum efficiency we recommend the flow rate through the shower is between 8 to 10 litres per minute. This can be achieved by installing a flow control valve if provision is not made to fit a flow restrictor in the shower rose.
- **Ensure the thermostat setting is appropriate.**

HIGH ELECTRICITY BILLS

- **Is one outlet (especially the shower) using more hot water than you think?**
- **Is there a leaking hot water pipe, dripping hot water tap, etc?**
  Even a small leak will waste a surprisingly large quantity of hot water and energy. Replace faulty tap washers, and have your plumber rectify any leaking pipe-work.
- **Is either of the expansion valves discharging too much water?**
- **Consider recent changes to your hot water usage pattern and check if there has been an increase in tariffs since your previous account.**

INSTALLATION

Please take careful notice of the advice given as Rheem New Zealand Limited will not be liable for any loss or damage suffered as a result of the incorrect installation of the water heater, or any failure to check the capability of the electrical supply, wiring to the water heater.

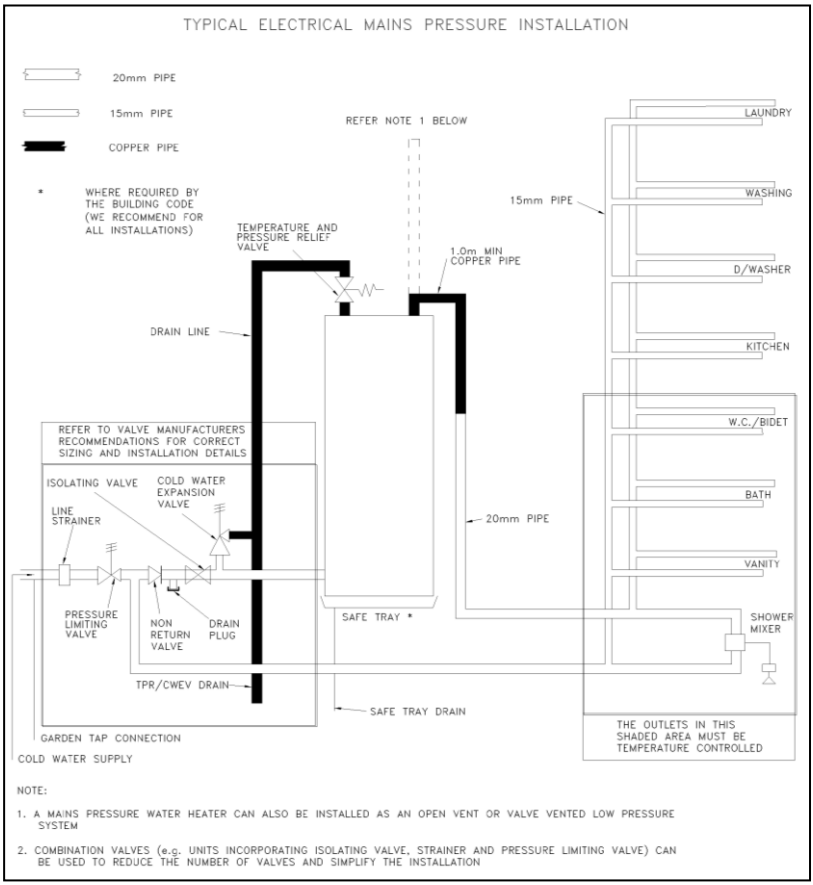
The water heater must be installed by an authorised service person or registered plumber and the installation must comply with the New Zealand Building Code, Rheem Installation Instructions, AS/NZS 3000 electrical installations and all local codes and regulatory authority requirements.

- **WATER HEATER LOCATION**
  Water heaters with a galvanised outer casing are only suitable for indoor installations, whereas water heaters with a painted casing are suitable for both indoor and outdoor installations. Clearance must be allowed for servicing and removal of the water heater and it must be accessible without the use of a ladder or scaffold. (Typical clearances are: TPR valve removal 135 mm, Element Cover and Element Removal 400 mm). Also, you must be able to read the information on the rating plate and if possible, leave headroom of one water heater length so the anode can be inspected or replaced.
- **CONNECTION SIZES**
  - Hot water connection: RP *¾/20.*
  - Cold water connection: RP *¾/20.*
  - Relief valve connection: RP ½/15.
- **INLET/OUTLET CONNECTIONS**
  A union must always be provided at the cold water inlet and hot water outlet for disconnection reasons. Both connections are fitted with plastic liners and it is important that they remain in situ for the water heater to function properly. These liners will be pushed into the correct position as the fitting is being screwed in.

- **NON RETURN VALVE**
  A non return valve must be installed on the cold water line to the water heater.
- **PIPE SIZES**
  The cold water line to the water heater should be the same size or bigger than the hot water line from the water heater. For best results, choose the most suitable pipe size for each individual application.
- **COLD WATER EXPANSION VALVE**
  A cold water expansion valve must be fitted to the cold water line to the water heater.
- **TEMPERATURE AND PRESSURE RELIEF VALVE**
  When fitting the temperature and pressure relief valve, ensure the probe has not been bent. Seal the thread with PTFE tape, or similar, as recommended by the valve manufacturer and screw the valve into the off-centre socket. Do not use a wrench on the valve body – use the spanner flats provided. Drain the TPR valve with a pipe the same size as the valve outlet. The drain must run downwards to a visible point outside the house, preferably over a gully trap.
  In locations where the pipe exceeds 3 metres unbroken length, or freezing could occur, an air break must be provided within 300 mm of the TPR valve.

WARNING: The drain line from the TPR valve must be in copper. *A Rheem mains pressure water heater must* ***not*** *be installed and operated without a suitable (valve that complies with AS 1357.1) temperature and pressure relief valve. Under no circumstances block the outlet of this valve or its drain pipe.*

DIAGRAM 2:


TYPICAL ELECTRICAL MAINS PRESSURE INSTALLATION
20mm PIPE
15mm PIPE
COPPER PIPE
* WHERE REQUIRED BY THE BUILDING CODE (WE RECOMMEND FOR ALL INSTALLATIONS)
REFER NOTE 1 BELOW
TEMPERATURE AND PRESSURE RELIEF VALVE
1.0m MIN COPPER PIPE
DRAIN LINE
REFER TO VALVE MANUFACTURERS RECOMMENDATIONS FOR CORRECT SIZING AND INSTALLATION DETAILS
ISOLATING VALVE
COLD WATER EXPANSION VALVE
LINE STRAINER
PRESSURE LIMITING VALVE
NON RETURN VALVE
DRAIN PLUG
TPR/CWEV DRAIN
SAFE TRAY *
SAFE TRAY DRAIN
GARDEN TAP CONNECTION
COLD WATER SUPPLY
20mm PIPE
15mm PIPE
LAUNDRY
WASHING
D/WASHER
KITCHEN
W.C./BIDET
BATH
VANITY
SHOWER MIXER
THE OUTLETS IN THIS SHADED AREA MUST BE TEMPERATURE CONTROLLED
NOTE:
1. A MAINS PRESSURE WATER HEATER CAN ALSO BE INSTALLED AS AN OPEN VENT OR VALVE VENTED LOW PRESSURE SYSTEM
2. COMBINATION VALVES (e.g. UNITS INCORPORATING ISOLATING VALVE, STRAINER AND PRESSURE LIMITING VALVE) CAN BE USED TO REDUCE THE NUMBER OF VALVES AND SIMPLIFY THE INSTALLATION

- **PRESSURE LIMITING/REDUCING VALVE**
  If the water supply pressure exceeds the rated pressure, a pressure limiting or reducing valve is to be fitted in the installation.

The water heater must be installed with a properly drained safe tray where there is the possibility of water damage to furniture, carpets or building. All water heaters must be restrained to protect against seismic forces. (Refer to the Zealand Building Code for acceptable solutions.)

CONNECTIONS - ELECTRICAL

The electrical installation must be completed in accordance with AS/NZS 3000. All water heaters are designed for 230 VAC, 50 Hz mains operation and a means of disconnection from the power supply must be incorporated in the fixed wiring during installation.

A flexible 20 mm conduit is required for the electrical cable to the water heater. The conduit is to be connected to the unit with a 20 mm plain to screw adaptor. Connect the power supply wires directly to the terminal block and earth tab connection, ensuring there are no excess wire loops inside the front cover. For details, refer to the wiring diagram on the inside of the element cover. **A separate heating element earth wire is not required because the element earths by the thread of the element boss or the flange being in contact with the element socket.**

COMMISSIONING

TO FILL AND TURN ON THE WATER HEATER

The power supply to the water heater must not be switched on until the water heater is filled with water and a satisfactory Megger reading is obtained.

- Open all of the hot water taps in the house (don't forget the shower). Open the cold water isolation valve fully to the water heater to force the air out of the taps. As water flows freely from each tap, close it. Check the pipe-work for leaks.
- Switch on the electrical supply at the isolating switch to the water heater.

TO TURN OFF THE WATER HEATER

If it is necessary to turn off the water heater on completion of the installation, such as on a building site or where the premises is vacant, then;

- Switch off the electrical supply at the isolating switch to the water heater.
- Close the cold water isolation valve at the inlet to the water heater.

DRAINING THE WATER HEATER

- Switch off the electrical supply at the isolation switch to the water heater.
- Close the cold water isolation valve.
- Operate the relief valve easing lever to release the pressure in the water heater.
- Drain the water heater through the drain valve or plug.
- Undo the top outlet union or operate the relief valve easing lever again to let air into the water heater and allow the water to drain.

WHAT YOU SHOULD KNOW ABOUT WATER QUALITY

Your Rheem water heater is manufactured to suit the water condition of most local authority water supplies. However, some water supplies can have a detrimental effect on the water heater and its operation and/or life expectancy. If you are unsure of your water quality, you can obtain information from your local water supply authority.

HARSH WATER AREAS

Rheem water heaters are designed for use in areas where the Total Dissolved Solids (TDS) content of the water supply is less than 2500 mg/L.

In areas where the TDS exceeds 600 mg/L it is possible the standard magnesium anode fitted to the water heater, may be excessively active. To alleviate this, the magnesium anode should be replaced with an aluminium anode. Where the TDS of the water is less than 40 mg/L, such as when the water has been deionised or is from an alpine supply, a high potential anode should be used. The changing of anodes must be carried out by a plumber or qualified service person.

CAUTION

If your water supply has a TDS greater than 600 mg/L and the anode has not been changed, there is a possibility of hydrogen gas accumulating in the top of the water heater during long periods of no use.

If, under these conditions, the water heater has not been used for two or more weeks the following procedure should be carried out before using any electrical appliances (e.g. automatic washing machines and dishwashers) which are connected to the hot water supply.

The hydrogen, which is highly flammable, should be vented safely by opening a hot tap and allowing the water to flow. There should be no smoking or naked flames near the tap whilst it is turned on. Any hydrogen gas will be dissipated as indicated by an unusual spurting of the water from the tap. Once the water runs freely again any hydrogen in the system will have been released.

SATURATION INDEX

The saturation index is used as a measure of the water's corrosive or scaling properties. In a scaling water supply calcium carbonate is deposited out of the water onto any hot metallic surface. When scaling water has a saturation index greater than +0.40 an expansion control valve must be fitted on the cold water line after the non-return valve.

Where the saturation index exceeds +0.80, low watts density elements should be used. Where the saturation index is less than -1.0, a corrosive resistant heating unit should be used (contact your local Rheem Service Department or an authorised service person).

WATER HEATERS NOT INSTALLED IN ACCORDANCE WITH THE ABOVE ADVICE WILL NOT BE COVERED BY THE RHEEM WARRANTY.

WARRANTY

In addition to your legal rights, Rheem New Zealand Limited makes the following promise to the owner. We will repair or, if necessary, replace a defective domestic water heater or part, which has failed due to faulty manufacture on the following terms and conditions:

Component	Installation	Model	Warranty Period (since installation)	Warranty
All Components Except Inner Cylinder	All Installations	All Models	First 12 Months	New component or water heater (at Rheem's sole discretion) free of charge, including labour
		Optima	First 3 years	New component or water heater (at Rheem's sole discretion) free of charge, including labour
Inner Cylinder	Water heater installed in a single-family domestic dwelling with a thermostat setting below 76°C	Rheemglas & Calorifier	First 3 years	New water heater free of charge, including labour
			Years 4 & 5	New water heater free of charge, with installation and labour costs the responsibility of the owner
		Optima	First 5 years	New water heater free of charge, including labour
			Years 6 – 10	New water heater free of charge, with installation and labour costs the responsibility of the owner
	Water heater installed in any other than a single family domestic dwelling with a thermostat setting below 76°C	Rheemglas & Calorifier	First 12 months	New water heater free of charge, including labour
			Years 2 & 3	New water heater free of charge, with installation and labour costs the responsibility of the owner
		Optima	First 12 months	New water heater free of charge, including labour
			Years 2 – 5	New water heater free of charge, with installation and labour costs the responsibility of the owner

DURABILITY

Your Rheem water heater meets the durability requirements of New Zealand Building Code provided the water heater is:

1. Installed in accordance with the New Zealand Building Code and the Rheem Installation Instructions.
2. Maintained in accordance with these instructions.
3. Not damaged in any way.
4. Stored correctly prior to use, and
5. Your water quality remains within the requirements stated in the Installation Instructions.

WARRANTY CONDITIONS

1. The water heater must be installed and maintained in accordance with the Rheem Installation Guides supplied with the water heater, and comply fully with all the requirements of the New Zealand Building Code.
2. The warranty applies to the faulty manufacture of the water heater only and does not cover any plumbing, gas fitting or electrical parts supplied by the installer, that are not an integral part of the water heater, e.g. pipe-work, pressure limiting valve, stop valves, non-return valves, electrical switches, pumps and fuses.

WARRANTY INFORMATION

WARRANTY EXCLUSIONS:

The Rheem Warranty does not cover repair or replacement work to the water heater or its components caused directly or indirectly by:

1. Accidental damage
2. Acts of God
3. Failure due to misuse
4. Incorrect installation
5. Attempts to repair the water heater, other than by a Rheem Authorised Service Centre, or the Rheem Service Department
6. Excessive water pressure, negative pressure or excessive heat input
7. Non compliance with a) the Rheem Installation Instructions, b) relevant statutory regulations, c) New Zealand Building Code requirements.

This warranty does not include any additional costs, for removing a heater where dismantling or removal of other materials is required, that is, walls, doors or roofs. Rheem New Zealand Limited will not pay claims for damage to furniture, carpets, walls, foundations or any other consequential loss either directly or indirectly due to leakage or other causes from a water heater.

Repairs to the water heater due to chemical/scale formation in waterways when the heater has been connected to a harmful water supply as outlined on page 7 of the owners manual.

Service under this warranty can be provided by a **RHEEM AUTHORISED SERVICE CENTRE.**

Such services will be provided during their normal business hours.

Additional mileage and cartage charges shall be made for any water heater installed in a location exceeding 25km from the nearest Rheem Service Centre.

Note: You may have other rights in addition to this warranty under the "Consumer Guarantees Act 1993".

RHEEM SERVICE DEPARTMENT, 475 Rosebank Road Avondale, Auckland Phone: 0800 657 335, Fax: 09 829 0222

Or consult the Yellow Pages under "Plumbers" for your nearest Rheem Authorised Service Centre